



U.S. General Services Administration



Cost Per Person Model 2.0

User Manual

JUNE 2012

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I. INTRODUCTION

The Cost Per Person Model 2.0 (CPPM) is an Excel-based tool designed to compute and benchmark the cost per person for real estate (workspace), individual information technology (IT), and telecommunications. The CPPM also calculates potential cost savings resulting from the use of alternative work environments, such as hoteling or desk sharing.

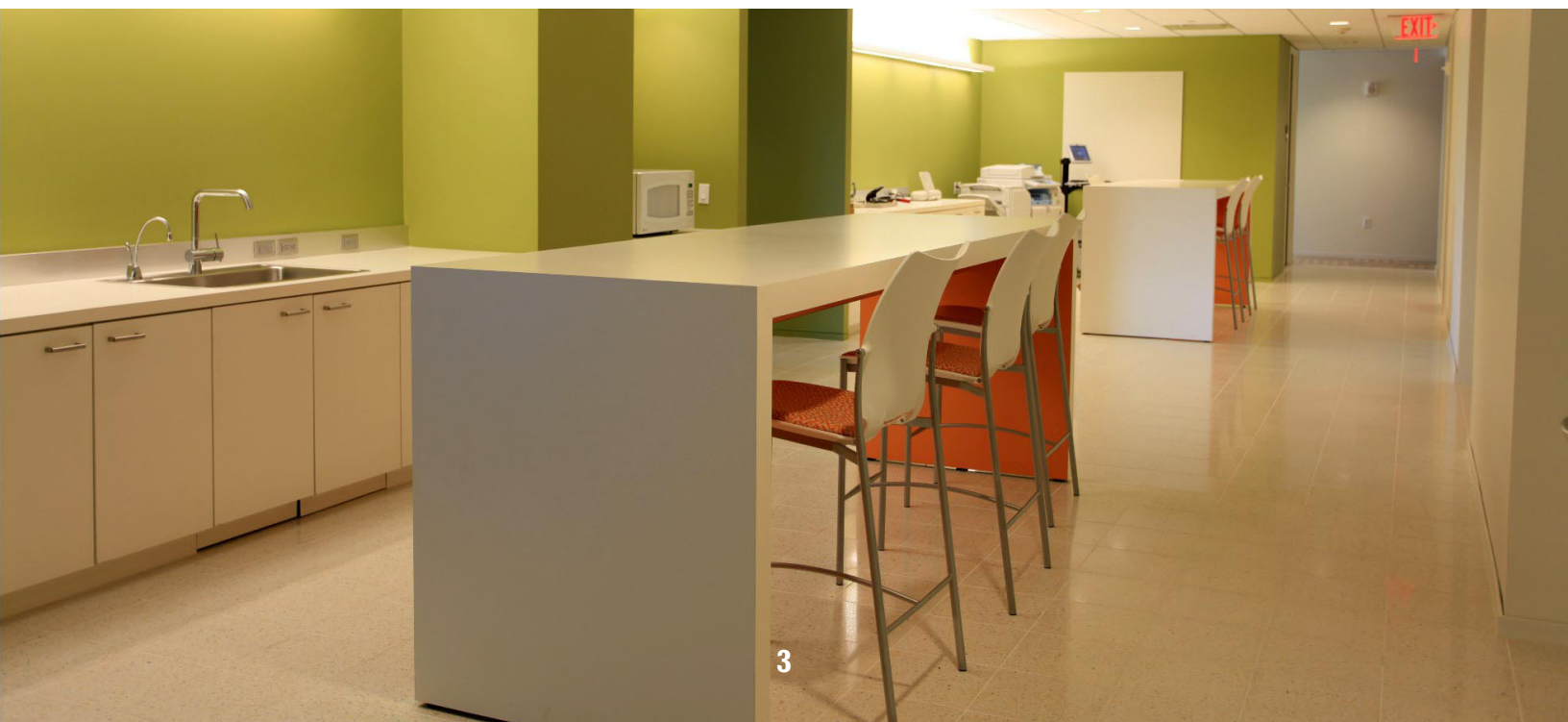
The CPPM features tabs on the bottom of each screen. Clicking on a tab takes you to the corresponding section of the CPPM. Tabs are as follows:

- **INTRODUCTION:** Provides an overview of CPPM functionalities.
- **CPPM:** Allows users to input data and generate results.
- **CPPM GRAPHS:** Illustrates cost per person results graphically.
- **CPPM CALCULATIONS:** Provides explanation of total workplace cost for organization, as well as cost per person.
- **SCENARIO TOOL:** Calculates potential net savings resulting from the use of alternative work environments and adjustments in office workspace scenarios.
- **SCENARIO GRAPHS:** Graphically illustrates costs savings calculated by the Scenario Tool.
- **DEFINITIONS:** Defines data inputs for CPPM.

CONTACT US

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GETTING STARTED: ENABLING MACROS

Depending on your current computer setting, you may see a security warning about macros similar to that shown in (Figure1). You will need to enable the spreadsheet macros by changing the macro security setting in the Trust Center.


Click the Microsoft Office Button , then click **Excel Options**. In the Trust Center category, click Trust Center Settings, and then click Macro Settings. Under Macro Settings, select "Enable all macros." Close the Excel file and reopen the Cost Per Person Model 2.0 (Figure 2).

FIGURE 1. ENABLING MACROS

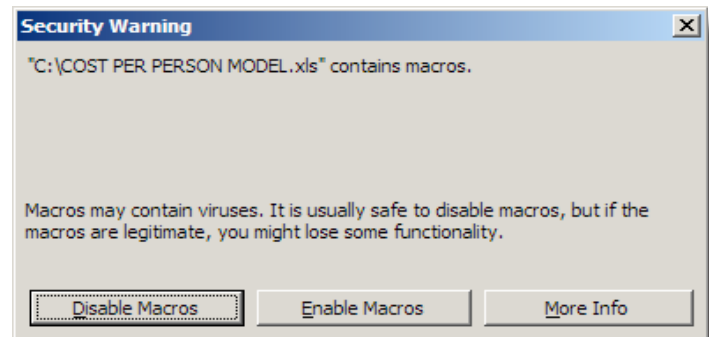
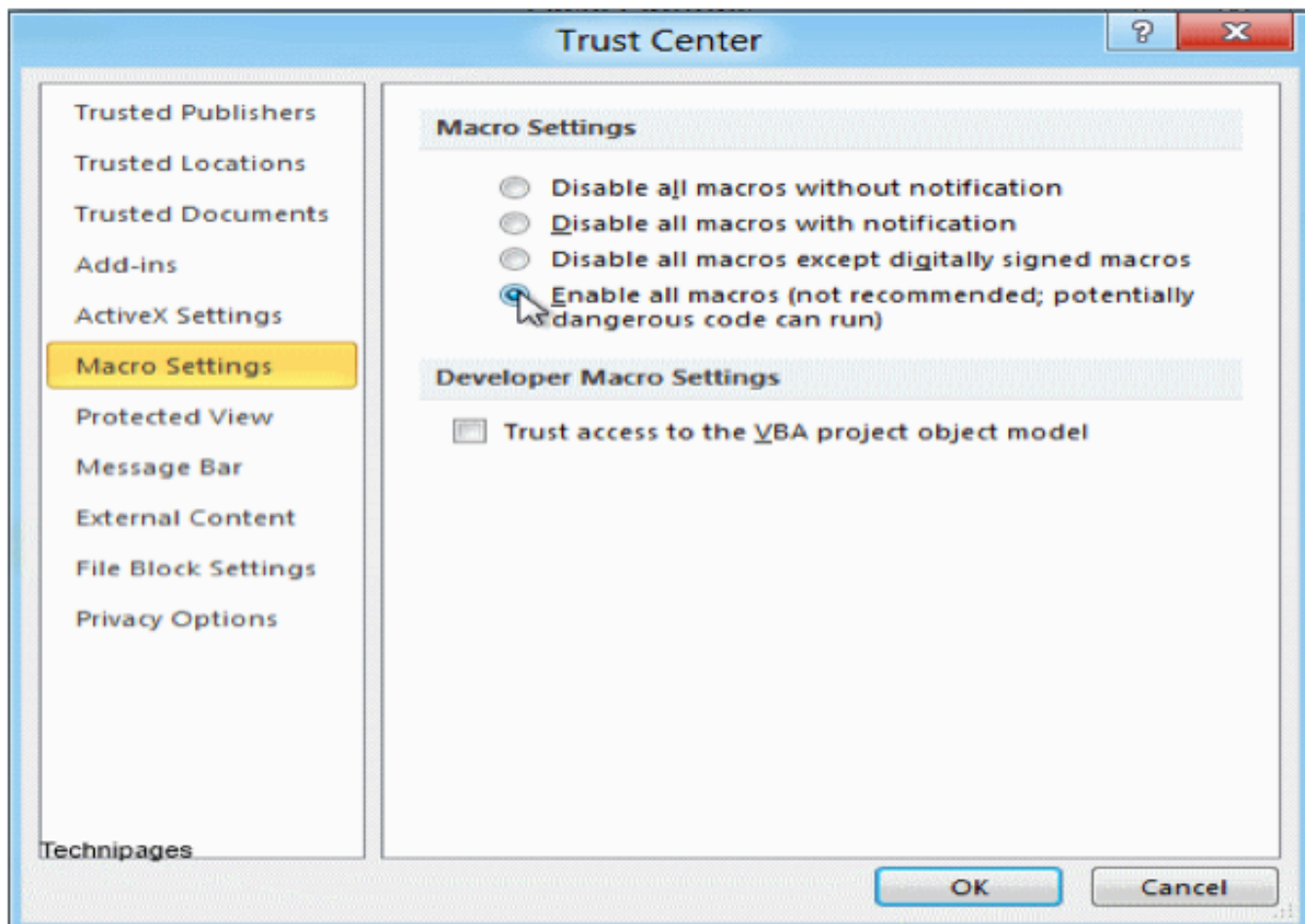


FIGURE 2. TRUST CENTER



COMPLETING THE CPPM WORKSHEETS

Follow the steps below to input data into the CPPM.

- Input data in only the un-shaded spreadsheet cells.
- Complete the CPPM worksheet from top to bottom. This is important because some calculations depend on prior inputs.
- Work through each component and use the suggested values if data specific to your organization are not available. Refer to the DEFINITIONS tab for more information.
- Click “Reset Form” to clear the worksheet.
- The CPPM displays a Cumulative Cost Per

Person at the top of each spreadsheet. This number allows the user to see the impact of adding each component to the previous entries.

- A user may refer to the CPPM CALCULATIONS tab at any time to see details for each calculation.
- To save your results, select “Save As” on the Excel toolbar. A dialog box will ask for a new file name. Once the new name is entered, click “Close” to save the model containing your input data.

Subsequent sections in this manual provide instructions for each section of the CPPM.



II. CPPM

The CPPM tab enables users to input specific information to estimate the organization's cost per person for the following components:

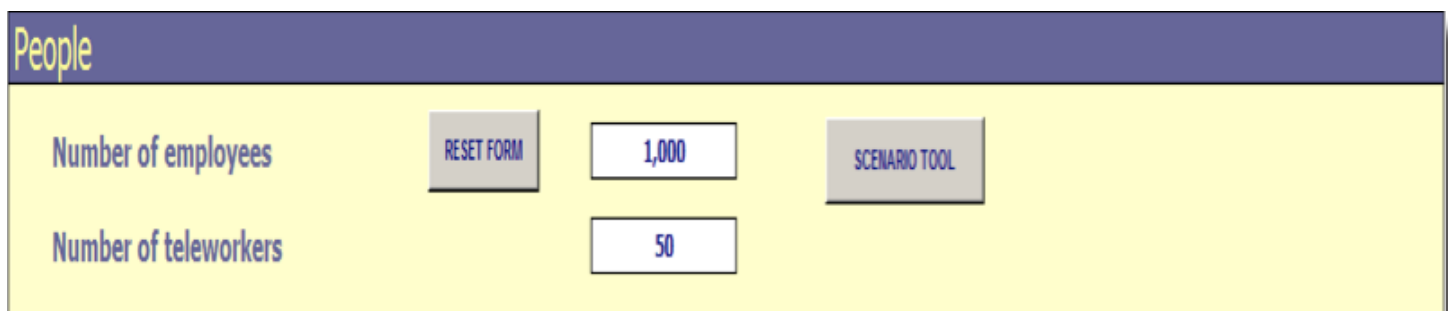
- **People**
- **Real Estate**
- **Telecommunications**
- **Individual Information Technology (IT) and Additional Devices**

Correct completion of the CPPM tab is essential for accurate cost results.

CPPM COMPONENTS

The function and use of each CPPM data component are described below.

FIGURE 3. PEOPLE



People	
Number of employees	1,000
Number of teleworkers	50

PEOPLE

The first component for data entry in the CPPM is the number of People (employees) working for your organization (Figure 3). “Number of employees” is a mandatory data field.

The CPPM defines the number of employees as the “total number of employees including full-time, part-time, interns, and contractors, in terms of full-time equivalents.” The number of employees is the basis for the cost per person calculation. In the example used in this manual, we assume 1,000 employees work for the organization.

The next component for data entry in the CPPM is the “Number of teleworkers.” Input the total number of home-based teleworker, which is the number of employees working from home,

telework center, etc. These employees are full time teleworkers who are not assigned a workspace or workstation by the organization. In the example used in this manual, we assume 50 employees are full time teleworkers.

A. REAL ESTATE

The Real Estate component (Figure 4) quantifies the cost per person from a space usage standpoint.

STEP 1: Enter the organizations “Total square footage of office space (rentable).” Total rentable office space includes restrooms, electrical and mechanical rooms, janitorial rooms, elevator lobbies and public corridors. Data should be available in the leasing agreement. In the example used in this manual, we assume 100,000

FIGURE 4. REAL ESTATE SECTION

A. Real Estate			
Total square footage of office space (rentable)	100,000	Including shared spaces such as restrooms and hallways, should be available on leasing agreement.	
Number of workspaces	1,000	Number of shared workspaces available	50
Square feet/person	100.00	Hoteling or desk sharing (unassigned workspaces)	
		Ratio of teleworkers to shared workspace	1.00
Full service lease rate/square foot	\$40.00	Including utilities, trash removal, janitorial services, furniture and fixtures, etc.	
Estimated fully serviced workspace cost	\$4,000		
REAL ESTATE SUBTOTAL (A)	\$4,000,000		

total square footage of office space for the organization.

STEP 2: Enter the number of workspace. The number of workspaces or workstations an organization maintains for its employees has a significant impact on costs. Include all on-site workstations, regardless of the use or occupancy rate, in the workspace total. This is a key input in establishing the employee-to-workstation ratio and the various adjustments available in the SCENARIO TOOL. In the example, we assume 1,000 workspaces.

STEP 3: The CPPM calculates the organization “Square feet per person,” total square footage divided by the number of employees. The CPPM also calculates the number of shared workspaces unassigned to individual employees (50) and “Ratio of teleworkers to shared workspace” (1:1).

STEP 4: Input the fully serviced lease rate in units of rentable square foot. Common costs typically include utilities, trash removal, furniture and fixtures (in this case, \$40).

STEP 5: The CPPM provides the organization, “Estimated fully serviced workspace cost.” This

cost is a product of the organizations lease rate multiply by the total square footage of office workspace (\$4,000).

The Real Estate Subtotal (A) is the product of the number of total square footage of office space (in this case 100,000 sq. ft.) multiplied by the lease rate (\$40); yield \$4,000,000 in real estate cost.

B. TELECOMMUNICATIONS

The Telecommunications section (Figure 5) provides a total cost estimate for an employee telecommunication user profile. The profile cost includes the hardware, software, accounts and licensing for telephone services for an individual user. For digital systems this cost may include a

FIGURE 5. TELECOMMUNICATIONS SECTION

B. Telecommunications

Select Telecommunications Service

☐ Digital ☒ IP Phone

Estimated annual Telecom cost per user profile	\$497
Number of profiles	1,000
TELECOMMUNICATIONS SUBTOTAL (B)	\$497,000

desktop phone and a number with a voice mailbox. For IP Phone (Voice over Internet Protocol or VoIP) systems this would include the account (number and mailbox) and the desktop hardware, virtual phone software, and an allocated cost for the central appliances.

STEP 1: Under Select Telecommunications Service, indicate the type of telecommunications system offered by your organization by clicking either “Digital” or “IP Phone.” In Figure 5, the user has selected the IP Phone.

STEP 2: Once you select a telecommunication

service, the CPPM will automatically provide the user with the annual telecommunication cost per user profile.

STEP 3: The CPPM assumes that each employee in the organization is appointed with telecommunication service or a user profile.

The Telecommunications Subtotal (B) (in this

case, \$497,000) is the product of the number of employees (in this case, 1,000) multiplied by the annual cost per user profile (in this case, \$497) which was generated by your telecommunications service.

C. INDIVIDUAL INFORMATION TECHNOLOGY (IT) AND ADDITIONAL DEVICES

This section contains two subsections: one for estimating Individual Information Technology (IT) and Additional Devices (Figure 6).

The IT provides a total estimate for the annual operation and maintenance of individual information profiles based on the total number of employees entered in the People section (1,000).

FIGURE 6. INDIVIDUAL IT SUBTOTAL

C. Individual Information Technology (IT) and Mobility Devices	
Estimated annual IT cost per user profile	\$5,000
Individual IT Subtotal	\$5,000,000

Workstation IT costs may include both the cost of workstation IT systems and a local area network (LAN) interface.

FIGURE 7. ADDITIONAL DEVICES SUBTOTAL

ADDITIONAL DEVICES	QUANTITY	ANNUAL COST PER UNIT	
Second Computer (laptop)	15	\$500	Suggested range: \$400-\$500 per year (assumes a 3-year lifecycle)
Smartphone	15	\$600	Suggested range: \$600-\$700 per year
Other (optional description)	5	\$600	e.g., Tablet Computer (assumes a 1-year lifecycle and a range of \$500 - \$600 per year)
Tablet Computer			
Additional Devices Subtotal	\$19,500		

ADDITIONAL DEVICES

Several organizations may equip their employees with additional devices to support a robust mobile workforce, such as laptops for travel, telework, etc., tablet computers and Smartphones. The Additional Devices subsection (Figure 7) assesses the impact of such additional devices on the cost per person component.

STEP 1: Settle on which devices (laptop, Smartphone and/or other) to include in the cost per person analysis. If you determine other, you

may describe the device in the space provided.

STEP 2: For each device, input both a quantity and an annual cost for each unit. The CPPM provides suggested cost ranges for the additional devices.

FIGURE 8. PERSONAL IT AND ADDITIONAL DEVICES SUBTOTAL

Individual IT and Mobility Devices Subtotal (C)	\$5,019,500
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For the example, we have chosen to provide laptops (\$500 each) and Smartphones (\$600 each) to 15 employees and tablet computers (\$600 each) to five employees. (Note: The annual cost assumes a three-year life cycle for laptops.)

The Individual IT and Additional Devices Subtotal (C) (Figure 8) are added together to provide the Individual IT and Additional

TOTALS

The CPPM computes two annual totals: Total cost for organization and total cost per person (Figure 9). It calculates these totals by using the subtotals from sections A, B, and C.

FIGURE 9. TOTALS (A+B+C)

TOTALS (A+B+C) <small>(All costs are annualized)</small>	
TOTAL COST FOR ORGANIZATION	\$9,516,500
TOTAL COST PER PERSON	\$9,517

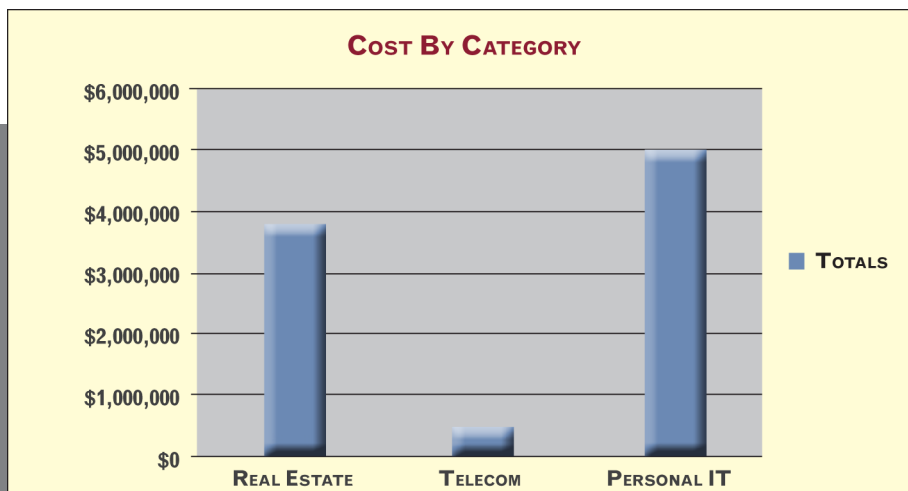
Devices Subtotal (\$5,019,500) and will be used in calculating the total cost for your organization and total cost per person.

III. CPPM GRAPHS

To view the cost per person results graphically, click on the CPPM GRAPHS button at the top right of the CPPM tab, or click the CPPM GRAPHS tab.

The CPPM GRAPHS tab illustrates the cost per person by component (Figure 10) and the total cost for the organization by component (Figure 11).

These graphs can be printed out for your organization's reference.



(REPLICATED EXAMPLE)

FIGURE 10. CPPM GRAPHS:
COST PER PERSON

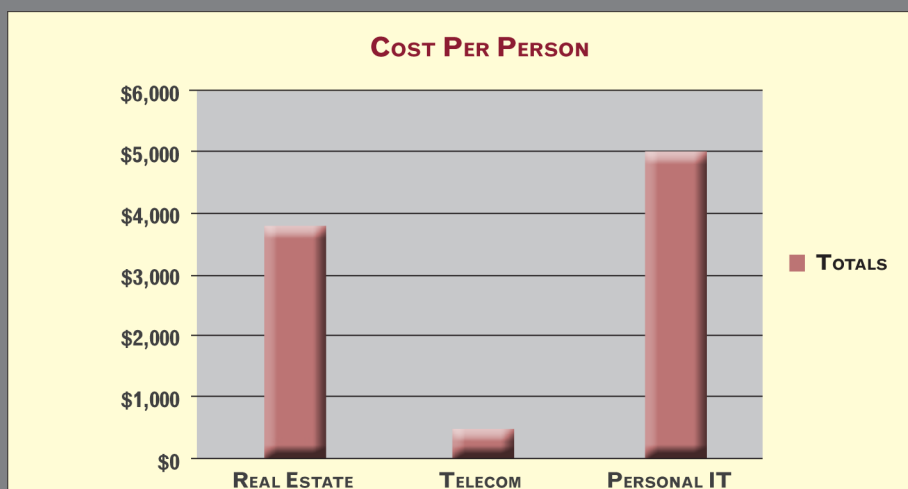


FIGURE 11. CPPM GRAPHS:
TOTAL COST FOR ORGANIZATION

IV. SCENARIO TOOL

The “what-if” SCENARIO TOOL estimates potential net cost savings resulting from revised CPPM inputs. To use the Scenario Tool, you must first complete the CPPM tab, as the input data from the CPPM is used in the scenario calculations. The data you entered into the CPPM will remain unchanged (Figure 12).

GETTING STARTED: SCENARIO TOOL

Click the SCENARIO TOOL tab, and the Current Baseline displays cost entry from the CPPM input. Users can formulate “what-if” workspace alterations in the Adjusted Outcomes Section. The “what-if” results will be displayed (both increases and decreases) in the Adjusted Outcomes and the Potential Savings Sections.

[Reset Form](#)

Current Baseline		Adjusted Outcomes	
Number of employees	<input type="text" value="1,000"/>	Number of employees	<input type="text" value="1,000"/>
Total number of teleworkers	<input type="text" value="50"/>	Total number of teleworkers	<input type="text" value="50"/>
Real Estate		Real Estate	
Total square footage of office space	<input type="text" value="100,000"/>	Total square footage of office space	<input type="text" value="100,000"/>
Total number of workspaces	<input type="text" value="1,000"/>	Total number of workspaces	<input type="text" value="1,000"/>
Square feet/person	<input type="text" value="100"/>	Square feet/person	<input type="text" value="100"/>
Cost per square foot	<input type="text" value="\$40.00"/>	Cost per square foot	<input type="text" value="\$40.00"/>
Cost per workspace	<input type="text" value="\$4,000"/>	Cost per workspace	<input type="text" value="\$4,000"/>
Real Estate Subtotal	<input type="text" value="\$4,000,000"/>	Real Estate Subtotal	<input type="text" value="\$4,000,000"/>
Teleworkers		Teleworkers	
Ratio of teleworkers to shared workspace	<input type="text" value="1.00"/>	Ratio of teleworkers to shared workspace	<input type="text" value="1.00"/>
Shared Workspaces	<input type="text" value="50"/>	Shared Workspaces	<input type="text" value="50"/>
Shared Square Feet	<input type="text" value="5,000"/>	Shared Square Feet	<input type="text" value="5,000"/>
Shared Space Costs	<input type="text" value="\$0"/>	Shared Space Costs	<input type="text" value="\$200,000"/>
Telecommunications		Telecommunications	
Estimated annual cost per profile	<input type="text" value="\$497"/>	Estimated annual cost per profile	<input type="text" value="\$497"/>
Number of profiles	<input type="text" value="1,000"/>	Number of profiles	<input type="text" value="1,000"/>
Telecom Subtotal	<input type="text" value="\$497,000"/>	Telecom Subtotal	<input type="text" value="\$497,000"/>
Individual Information Technology (IT)		Individual Information Technology (IT)	
Estimated annual IT cost per profile	<input type="text" value="\$5,000"/>	Estimated annual IT cost per profile	<input type="text" value="\$5,000"/>
Individual IT Subtotal	<input type="text" value="\$5,000,000"/>	Individual IT Subtotal	<input type="text" value="\$5,000,000"/>
Mobility Devices		Mobility Devices	
Laptop	<input type="text" value="\$7,500"/>	Laptop	<input type="text" value="\$7,500"/>
Smartphone	<input type="text" value="\$9,000"/>	Smartphone	<input type="text" value="\$9,000"/>
Other	<input type="text" value="\$3,000"/>	Other	<input type="text" value="\$3,000"/>
Mobility Devices Subtotal	<input type="text" value="\$19,500"/>	Mobility Devices Subtotal	<input type="text" value="\$19,500"/>
Individual IT/Devices Subtotal	<input type="text" value="\$5,019,500"/>	Individual IT/Devices Subtotal	<input type="text" value="\$5,019,500"/>
Total Costs		Total Costs	
Total Cost	<input type="text" value="\$9,516,500"/>	Total Cost	<input type="text" value="\$9,516,500"/>
Total Cost Per Person	<input type="text" value="\$9,517"/>	Total Cost Per Person	<input type="text" value="\$9,517"/>

[Click to View Results Graphically](#)

Potential Savings

Change in Cost

Change in Cost Per Person

Change in Teleworkers

Change in Sq. Ft.

FIGURE 12.
SCENARIO TOOL

In the Adjusted Outcomes section, choose a workplace variable to adjust, such as Total number of teleworkers, Total square footage of office space, and Total number of workspace. Users may use the sliding scale or input the desired number only in the un-shaded cells.

To view the SCENARIO TOOL results graphically, Click the SCENARIO GRAPHS tab to view an illustration of the cost per person and total cost for the organization by components.

The following alternative work scenarios have been created to demonstrate the analytical power of the SCENARIO TOOL's capabilities.

SCENARIO 1

Adjustments

In the "Total square footage of office space" section, the user is contemplating reducing the organizations office space by 25% or 75,000 sq. ft. As a result of the CPPM calculations, the user will realize an annual real estate cost savings of \$1,000,000 and an annual cost per person savings of \$1,000 (Figure 13).

For additional cost savings, the user can also decrease the organization's number of workspaces to 975; which will

Adjusted Outcomes	
Number of employees	1,000
Total number of teleworkers	50
Real Estate	
Total square footage of office space	75,000
Total number of workspaces	975
Square feet/person	75
Cost per square foot	\$40.00
Cost per workspace	\$3,077
Real Estate Subtotal	\$3,000,000
Teleworkers	
Ratio of teleworkers to shared workspace	2.00
Shared Workspaces	25
Shared Square Feet	1,875
Shared Space Costs	\$75,000
Telecommunications	
Estimated annual cost per profile	\$497
Number of profiles	1,000
Telecom Subtotal	\$497,000
Individual Information Technology (IT)	
Estimated annual IT cost per profile	\$5,000
Individual IT Subtotal	\$5,000,000
Mobility Devices	
Laptop	\$7,500
Smartphone	\$9,000
Other	\$3,000
Mobility Devices Subtotal	\$19,500
Individual IT/Devices Subtotal	\$5,019,500
Total Costs	
Total Cost	\$8,516,500
Total Cost Per Person	\$8,517

reduce the organization cost per workspace. A reduction in the number of workspaces will impact the employees-to-shared workspace ratio. In the Telework sub-section of Adjusted Outcomes, the Scenario Tool provides users with a product of the ratio

Potential Savings	
Change in Cost	-\$1,000,000.00
Change in Cost Per Person	-\$1,000.00
Change in Teleworkers	0
Change in Sq. Ft.	-25,000
Click to View Results Graphically	

FIGURE 13. SCENARIO 1

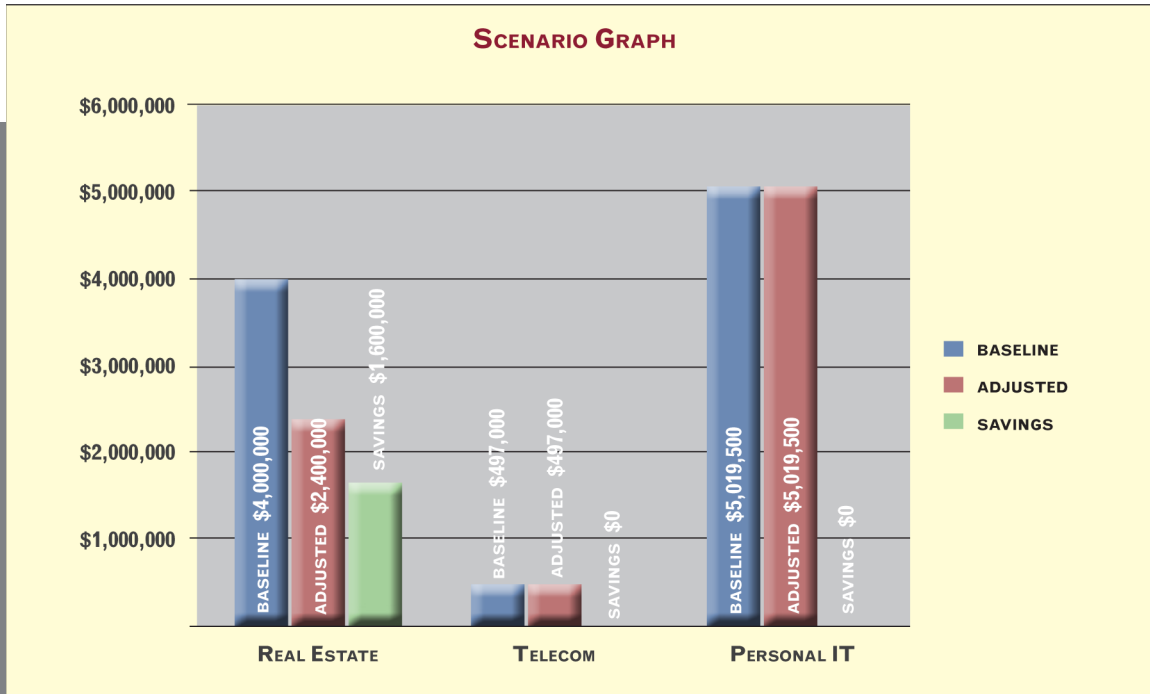
change in the number of employees to shared workspace.

Reducing the total number of workspaces from 1,000 to 975 will increase the ratio of teleworkers to shared workspace from 2:1. A high ratio indicates a low number of workstations, implying that many employees' are hoteling or desk sharing.

A lower ratio means that more employees require full-time workstations.

Figures 14 and 15 illustrate potential cost savings graphically.

SCENARIO 1 : GRAPHS



(REPLICATED EXAMPLE)

FIGURE 14. SCENARIO 1:
POTENTIAL TOTAL
ORGANIZATION COST
SAVINGS

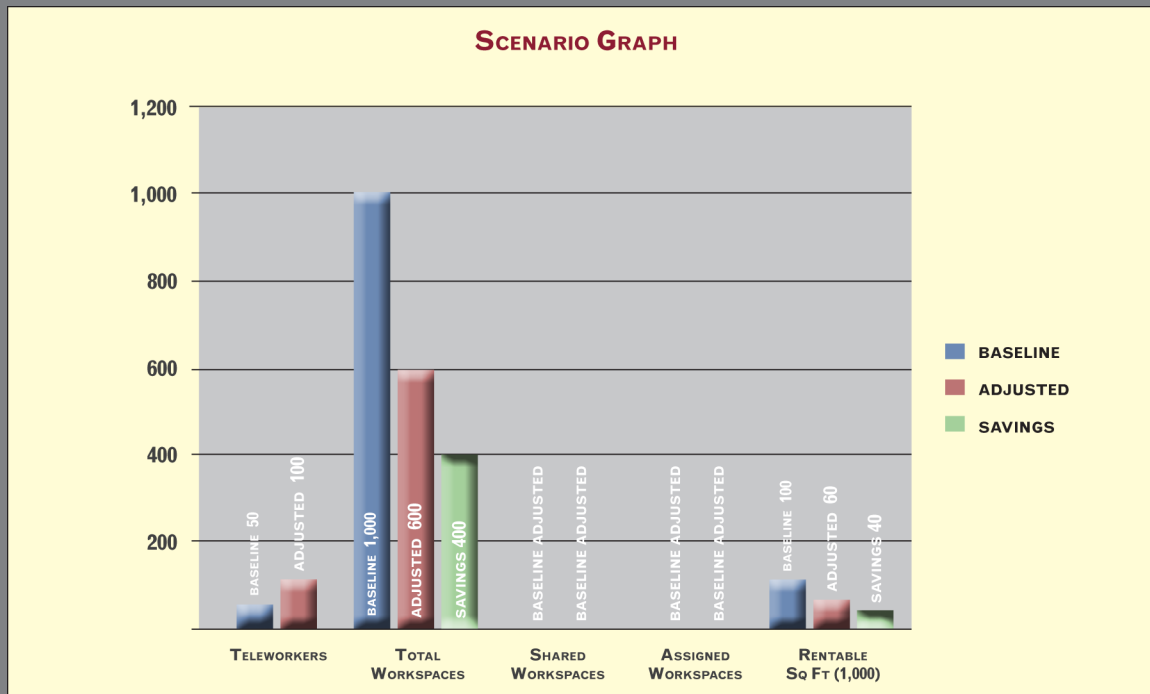


FIGURE 15. SCENARIO 1 :
POTENTIAL PER PERSON
COST SAVINGS

SCENARIO 2

Adjustments

The example illustrated in Scenario 2 demonstrates the potential cost savings of an alternative work environment using an extreme (and highly unlikely) example. In Scenario 2, the user significantly reduces the office space by 50% or 50,000 sq. ft., and also reduces the number of office workspace to 970.

Furthermore the user has increased the number of employees-to-workstation ratio 2.5:1 (Figure 16). The workstation ratio drives potential real estate cost savings. If you increase the employees-to-workstation ratio, your organization requires fewer workstations and thus theoretically can reduce required office space, which can translate into potential cost savings. This increased employees-to-share workstation ratio sharply reduces the number of available workstations.

These results are presented graphically in Figures 17 and 18. This \$2,000,000 organizational cost savings highlight the magnitude of savings possibilities with the effective use of a hoteling or desk sharing program which embraces the use of mobile work tools and technologies.

Adjusted Outcomes	
Number of employees	1,000
Total number of teleworkers	50

Real Estate	
Total square footage of office space	50,000
Total number of workspaces	970
Square feet/person	50
Cost per square foot	\$40.00
Cost per workspace	\$2,062
Real Estate Subtotal	\$2,000,000

Teleworkers	
Ratio of teleworkers to shared workspace	2.50
Shared Workspaces	20
Shared Square Feet	1,000
Shared Space Costs	\$40,000

Adjusted Outcomes	
Number of employees	1,000
Total number of teleworkers	50

Real Estate	
Total square footage of office space	50,000
Total number of workspaces	970
Square feet/person	50
Cost per square foot	\$40.00
Cost per workspace	\$2,062
Real Estate Subtotal	\$2,000,000

Teleworkers	
Ratio of teleworkers to shared workspace	2.50
Shared Workspaces	20
Shared Square Feet	1,000
Shared Space Costs	\$40,000

Potential Savings	
Change in Cost	-\$2,000,000.00
Change in Cost Per Person	-\$2,000.00
Change in Teleworkers	0
Change in Sq. Ft.	-50,000

[Click to View Results Graphically](#)

FIGURE 16. SCENARIO 2: ADJUSTMENTS

SCENARIO 2 : GRAPHS

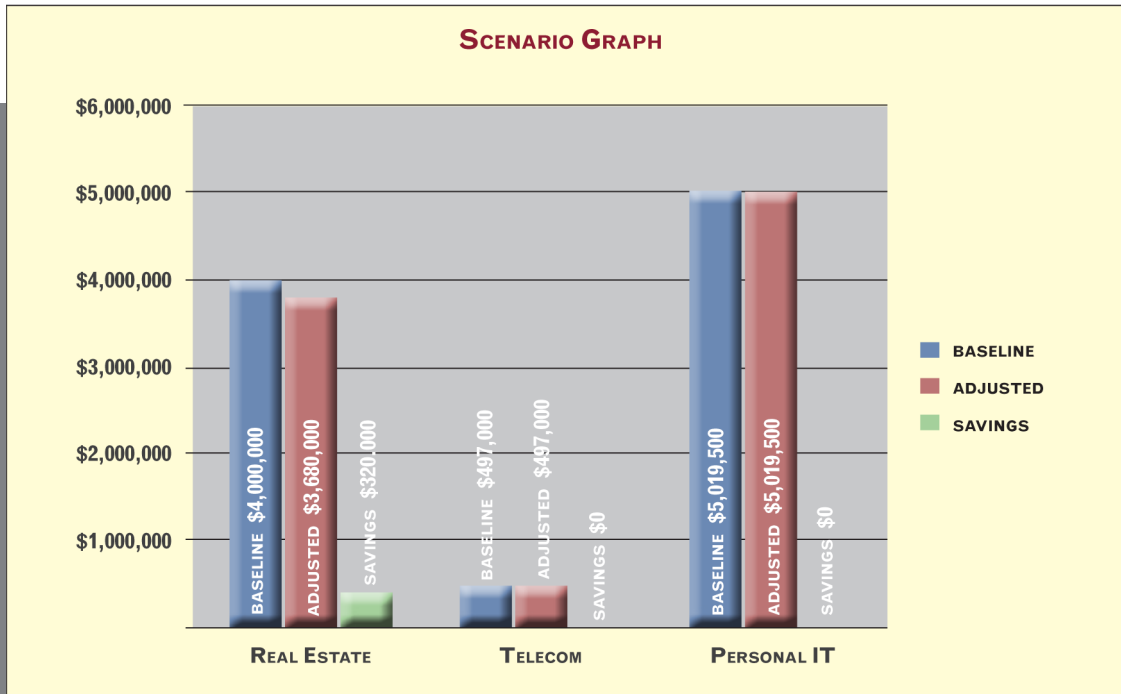


FIGURE 17. SCENARIO 2:
POTENTIAL TOTAL COST
SAVINGS

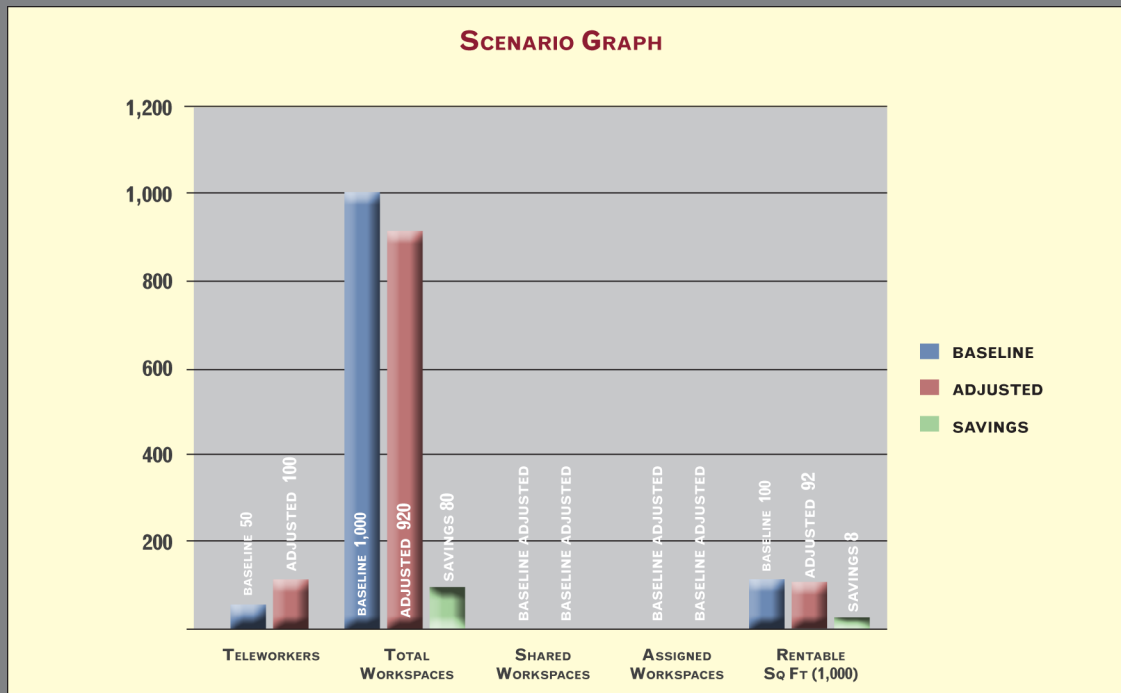


FIGURE 18. SCENARIO 2:
POTENTIAL COST
SAVINGS PER PERSON

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- g. Except to the extent applicable by law, if any provides otherwise, this Agreement will be governed by federal law.
- h. If any part of this Agreement is held invalid or unenforceable, that part will be construed to reflect the parties' original intent, and the remaining portion will remain in full force and effect.
- i. A waiver by either party to any term or condition of this Agreement or any breach thereof, in any one instance, will not waive such term or condition or any subsequent breach thereof.
- j. You may assign your rights under this Agreement to any party that consents to and agrees to its terms.
- k. This Agreement will be binding upon, and inure to the benefit of, the parties, their successors, and permitted assigns.





Smarter Solutions

Cost Per Person Model 2.0

User Manual